

AS-2259 HF NVIS Antenna Erection Procedure

Figure 3-16. AS-2259/GR (NVIS).

The NVIS Antenna AS-2259/GR is a lightweight, sloping dipole, omnidirectional antenna. It is designed to be used with an AM radio operating in the HF range of 2 to 30 MHz. It provides high angle radiation (near vertical incidence) to permit short-range sky wave propagation over communications circuits varying from 0 to 300 miles. It can be used with tactical HF radio communications equipment that tunes a 15-foot whip antenna. Examples of such equipment are the AN/GRC-106 and the IHFRs (AN/PRC-104A and AN/GRC-213/193A)

Table 3-1. Specifications of NVIS Antenna AS-2259/GR.

| | |
|---|---|
| Frequency range | 2 to 12 MHz (NVIS mode) (2 to 30 MHz with antenna tuner) |
| Polarization | Horizontal and vertical simultaneously |
| Impedance | Requires coupler |
| Power handling capability | 1000 watts PEP or 500 watts average |
| Gain | Comparable to dipole mounted horizontally 10 feet above same type ground |
| Radiation pattern: Azimuth Elevation | Omnidirectional Near-vertical incidence, typical |
| Input RF connector | 3/8-16 UNC2A x 1/2 inch stud with ground strap on mast base |
| Wind and ice loading | 60-MPH wind with no ice |
| Overall height | 15 feet (4.6M) |
| Installed area | 61 x 61 feet (18.6 x 18.6M) |
| Transit container | Canvas "tool roll" |
| Storage volume | 0.44 Cu. feet (0.01 Cu. M) |
| Weight | 12 pounds (5.44 kG) |
| Erection time | 2 men, 5 minutes |

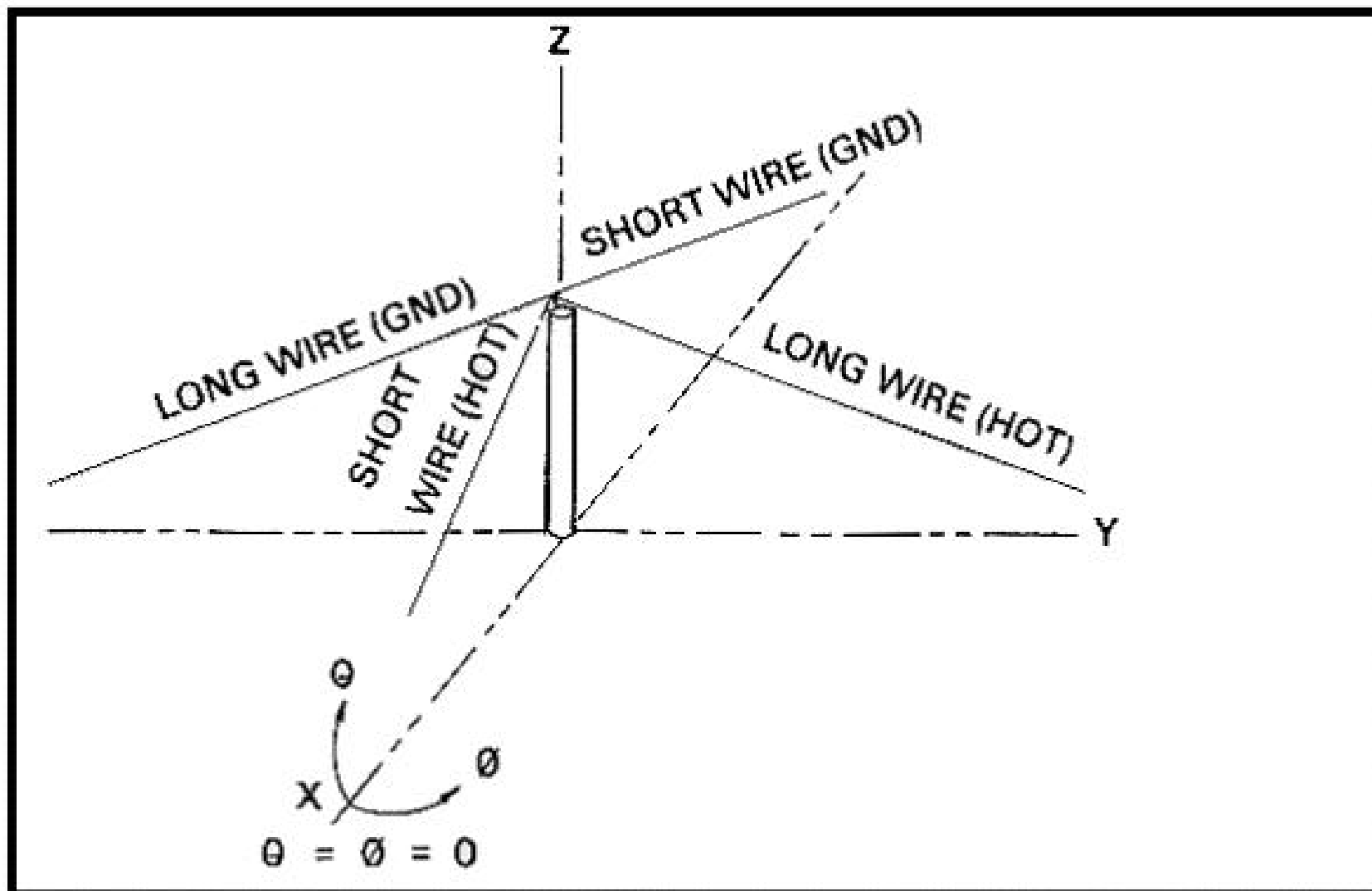


Figure 3-24. Physical configuration and coordinate location of elements of AS-2259/GR antenna.

| STEP | ACTION |
|------|--------|
|------|--------|

1 Site selection.

An 84- by 84-foot clear area is required for installation of the AS-2259/GR antenna. Figure 3-17 shows an antenna site with inadequate distance between power lines and antenna mast.

DANGER

Antennas must be separated from power lines by a distance equal to twice the height of the antenna. Antenna contact with power lines may cause serious injury or even death to the operator. Be sure transmitter power is off. Contacting the antenna when the transmitter is keyed will cause electrical burns.

2 Ground installation.

- a. Open antenna pack. Remove antenna base (Figure 3-19) and place it on the ground.
- b. Remove top mast assembly (Figure 3-19) and install it on the antenna base.
- c. Uncoil the antenna elements and stretch them in the direction in which they leave the top housing. Ensure the elements are not shorted to each other or to the housing. If necessary, adjust the direction of the elements.
- d. Measure anchor positions using the sleeve cable markers as guides and install guy stakes as shown in Figure 3-20. Leave slack in the elements lying on the ground.

NOTE: Before assembling mast sections, wipe unpainted surfaces clean of mud or dirt to ensure good electrical contact.

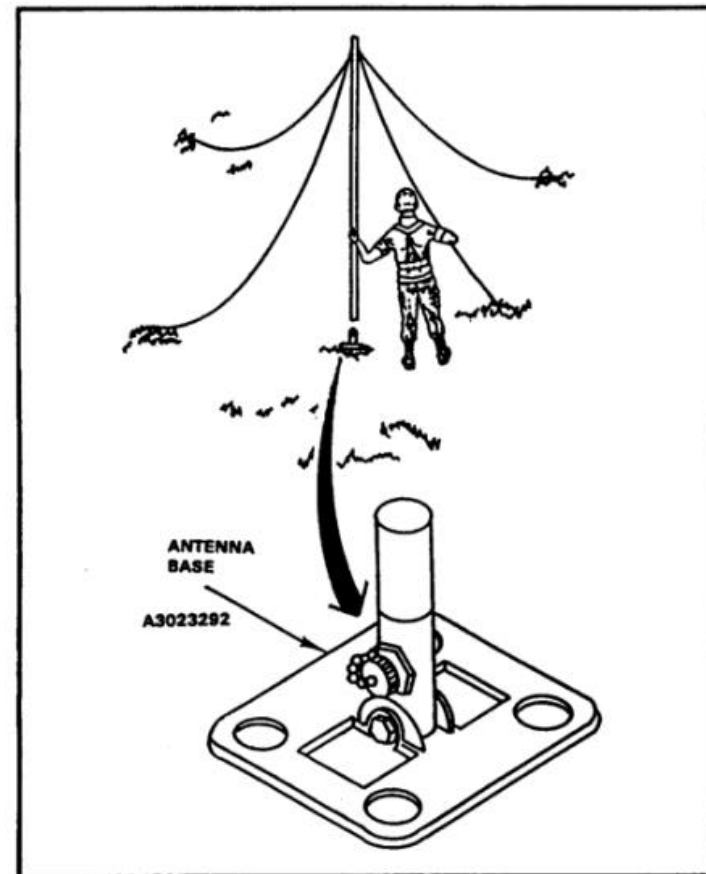


Figure 3-19. AS-2259/GR antenna top mast assembly installation.

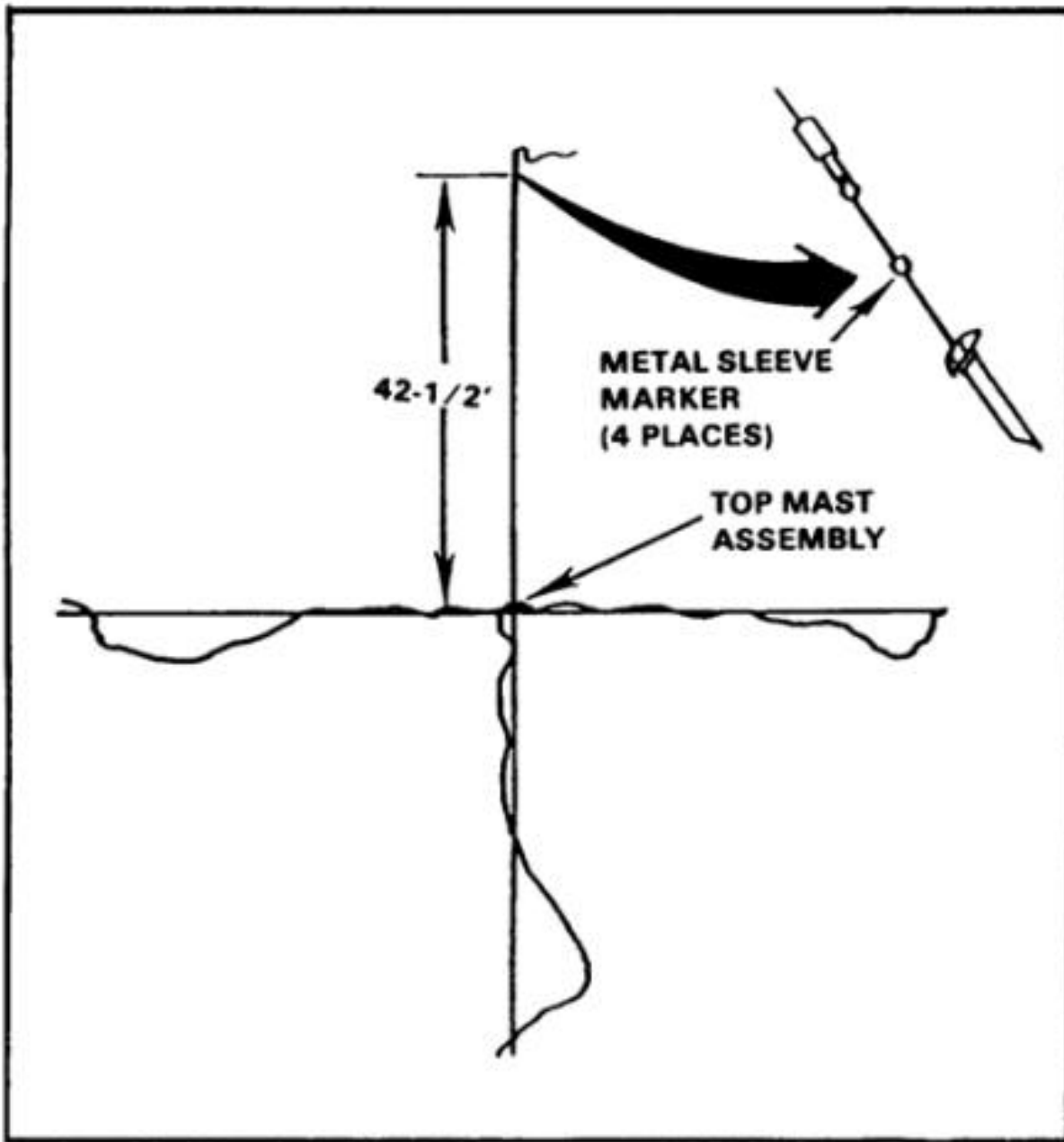


Figure 3-20. Guy stake installation.

- e. Assemble mast by raising the top mast assembly vertical to the ground and by inserting each of the seven 22-inch sections into the bottom of the previous section. Continue to lift upward on the mast as each section is installed. Insert the bottom section of the mast onto the mast base (Figure 3-18) by lowering it into place.
- f. Adjust tension on all elements until mast is vertical and straight. Elements need not be excessively taut (3 to 5 pounds of tension).

3 Vehicular installation.

Install the AS-2259/GR antenna on vehicular mounts the same as above, except use the vehicular whip mount. Use the Adapter MX-10618 instead of the base assembly. Use only the number of mast sections needed to raise the top of the antenna to about 16 feet.

NOTE: Do not use the Adapter MX-9313/GR that may be in earlier models of the AS-2259/GR with any of the IHFR systems. Use the MX-10618 with IHFR sets.

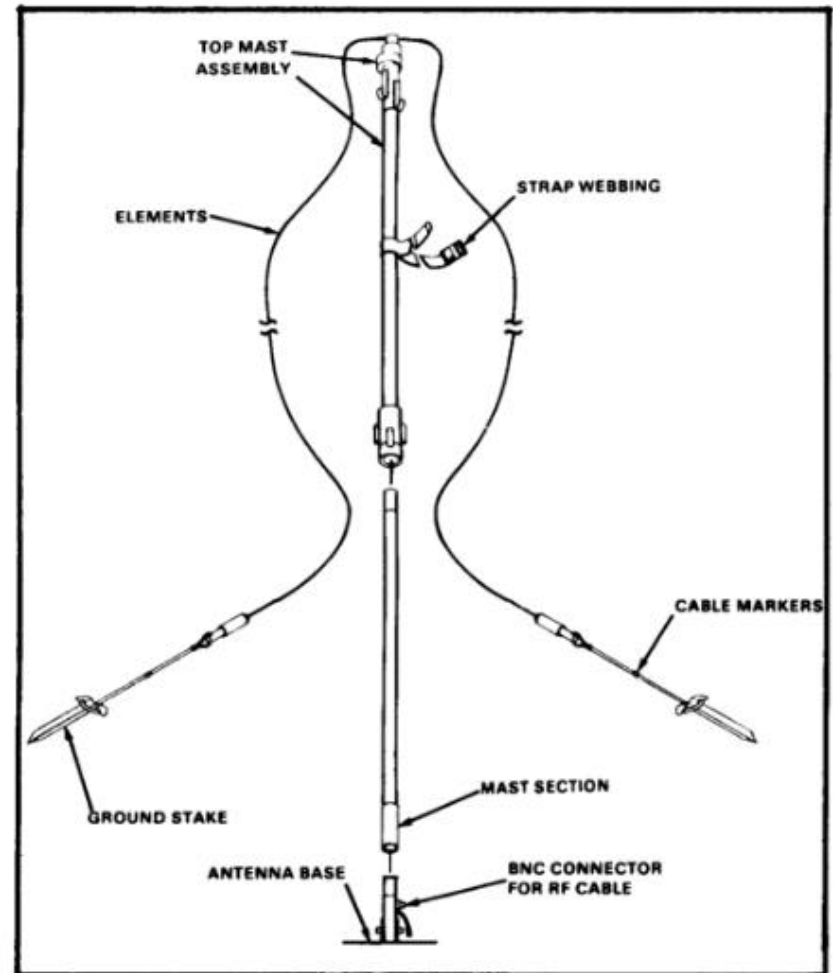


Figure 3-18. AS-2259/GR antenna base.